



PROGETTO DI PONTI

ICAR/09 - 6 CFU - 2° Semester

Teaching Staff

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LEARNING OBJECTIVES

The course aims to :

- provide knowledge regarding the historical development of bridges and types commonly used in structural engineering
- provide knowledge regarding the construction techniques of bridges
- provide knowledge regarding the actions on bridges
- provide knowledge regarding the main theoretical models applied to the structural analysis of bridges
- provide knowledge regarding the design of bridges, in view of present codes
- provide knowledge regarding the assessment of damage of existing bridges.

COURSE STRUCTURE

Theoretical and practical lessons

DETAILED COURSE CONTENT

Theoretical lessons:

- Historical development of bridges
- Types commonly used in structural engineering: girder bridges, rigid-frame bridges, arch bridges, cable-stayed bridges and suspension bridges
- Parts of the bridge: deck, piers, abutments, bearing devices, expansion joints etc.
- Codes regarding design and construction of bridge
- Loads on bridges
- Design of bridges with composite decks

- Influence lines and influence surfaces
- Uniform and non-uniform torsion in bridge decks
- Local instability in steel girders
- Bearing devices
- Design of foundations, piers and abutments
- Seismic design of bridges
- Constructional techniques
- Methods for the assessment of damage of existing bridges

Practical lessons:

- Design of bridges with composite steel-concrete decks (reinforced concrete slab, longitudinal steel girder, transverse beams, bearing devices and piers)

TEXTBOOK INFORMATION

- Ioannis Vayas, Aristidis Iliopoulos. Design of composite steel concrete bridges to Eurocodes. CRC Press, Taylor and Francis Group. ISBN: 978-1-4665-5744-4
 - Raithel Aldo- Costruzioni di Ponti-Liguori Editore-Napoli 1970
 - Raithel Aldo. Ponti a travata - volume primo -Liguori Editore-Napoli 1978
 - Petrangeli Mario Paolo. Progettazione e Costruzione di Ponti-Masson
 - Priestley M. J. N., Seible F., Calvi G. M. Seismic Design and Retrofit of Bridges; John Wiley & Sons; 1996. ISBN: 978-0-471-57998-4
 - Normative Tecniche in vigore (D.M.14/01/2008 e ss.mm.ii, Circolare 2/2/2009, Eurocodici)
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